REMARKS

Summary of Office Action

As an initial matter, Applicants note with appreciation that the Examiner appears to have withdrawn all rejections that are set forth in the previous Office Action.

Claims 20-23, 26-38, 40 and 41 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Singh et al., U.S. Patent No. 5,077,371 (hereafter "SINGH"), in view of Althaus et al., U.S. Patent No. 4,950,792 (hereafter "ALTHAUS"), in further view of Sondhe et al., U.S. Patent No. 5,340,652 (hereafter "SONDHE").

Claims 24 and 25 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over SINGH in view of ALTHAUS in further view of SONDHE and in further view of Motsinger et al., U.S. Patent No. 3,217,536 (hereafter "MOTSINGER").

Claims 19 (probably claim 39 was intended) is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over SINGH in view of ALTHAUS in further view of SONDHE and in further view of Chapin, U.S. Patent No. 4,089,215 (hereafter "CHAPIN").

Response to Office Action

Reconsideration and withdrawal of the rejections of record are respectfully requested, in view of the following remarks.

Response to Rejection of Claims 20-23, 26-38, 40 and 41 under 35 U.S.C. § 103(a)

The rejection essentially alleges that SINGH teaches the production of polyurethanes using the components recited in, e.g., instant claim 20. The Examiner

concedes that SINGH "does not disclose the polyol component premixed before the mixing of the polyol component and the polyisocyanate component" and does not disclose a light resistant aromatic amine but essentially alleges that ALTHAUS would have rendered a corresponding premixing and the use of a light resistant amine obvious to one of ordinary skill in the art. The Examiner also concedes that SINGH "does not disclose bringing the mixture into contact with a synthetic resin not cured or not completely cured" but alleges that SONDHE renders obvious a corresponding process, SONDHE allegedly teaching "mixing (col. 13 line 31) a composition comprising an aromatic amine (col. 3 line 3), and a polyol component and a polyisocyanate component (abstract)". In this regard, the Examiner asserts that SONDHE and SINGH "are analogous art because they are both concerned with the same field of endeavor, namely polyurethane compositions cured with aromatic amines".

Applicant respectfully traverses this rejection. Specifically, it is pointed out that the Examiner's assertion that SONDHE and SINGH "are analogous art because they are both concerned with the same field of endeavor, namely polyurethane compositions cured with aromatic amines" is clearly incorrect and for this reason alone, the present rejection is evidently without merit.

In particular and as already pointed out in the response to the previous Office Action, the use of amines as reactants (hardeners) for polyurethane compositions is neither taught nor suggested anywhere in SONDHE. Although SONDHE does mention amine hardeners, these amine hardeners are exclusively mentioned as hardeners for the epoxy composition (see col. 4, line 34 to col. 9, line 19 of SONDHE), whereas the passage of SONDHE which relates to the urethane composition (col. 9, line 21 to col. 12,

line 58) does not mention amine hardeners at all. See, for example, the abstract of SONDHE (relied upon by the Examiner) which states, *inter alia* (emphasis added):

> The epoxy composition is generally a two-part, 100 percent volatile-free system containing one or more hardeners which are reacted with an epoxy component such as the glycidyl ether of bisphenol-A. The urethane composition is also generally a two-part, 100 percent volatile-free system containing a polyisocyanate component and an intermediate component comprising a polylactone polyol, and/or a polyether polyol, a polyester polyol, or a polyether-ester polyol, an aliphatic polyol chain extender and a moisture scavenger.

Applicant further notes that the passage in the specification of SONDHE which the Examiner apparently is additionally relying upon in this regard, i.e., col. 2, line 65 to col. 3, line 14 states (emphasis added):

> It is an aspect of the present invention to provide a novel epoxy composition which is generally volatile free. This composition is the reaction product of a epoxy resin, or combination of one or more resins combined with a hardener or a hardener system. The hardener can be an amine hardener such as an aliphatic or aromatic amine hardener, an anhydride hardener or a mercaptan hardener, etc. It is preferable that the hardener is an amine or mercaptan. An amine hardener system comprised of more than one amine hardener is most preferred. Preferably the amine hardener system is reacted with the epoxy resin at a equivalent ratio of from about 0.75 to about 1.05, and more preferably at from about 0.9 to about 1.0. The epoxy resin may include a base resin, along with an epoxy resin diluent for the reduction of the viscosity. Further, the resin may contain other additives, such as pigment, thixotropic agents, defoamers, and the like.

Accordingly, the above passage clearly and exclusively refers to the epoxy composition, not the urethane composition of SONDHE.

It further is noted that the fact that SONDHE is clearly aware of the use of amines as hardeners but nevertheless fails to mention the possible use of amines as hardeners for the urethane systems disclosed therein is a clear indication to one of ordinary skill in the art that amines should not be used as hardeners for the urethane systems of SONDHE,

thereby providing a disincentive rather than a motivation to proceed according to the present invention.

Regarding ALTHAUS, i.e., the remaining document relied upon by the Examiner, it is noted that ALTHAUS relates to Ames-test-negative chain–lengthening agents or cross-linking agents for polyurethanes. Column 3, lines 37 to 54 of this document teaches a large variety of corresponding amines, and applications of these compounds are as diverse as applications as hardeners for epoxy resins, for the production of new herbicides, etc. There is no specific teaching relating to gel coats, let alone gel coats that are to be used in combination with a synthetic resin comprising an epoxy resin and/or a vinyl ester resin. Further, ALTHAUS is completely silent with respect to the advantages associated with the use of the amines disclosed therein in combination with polyol components.

It further is submitted that while in col. 4, lines 11-18 thereof, ALTHAUS mentions in passing that polyurethanes can be made by mixing the polyol and amine before processing with the isocyanate (as an alternative to the prepolymer process and the one-shot process also mentioned in ALTHAUS), ALTHAUS neither mentions any advantages that might be associated with a corresponding process in comparison with a prepolymer process, nor is there any other indication in ALTHAUS that the former process is preferable over, or even only equally suitable as, the prepolymer process. On the contrary, all of the examples of ALTHAUS in which the preparation of a polyurethane is described relate to the prepolymer process (see col. 5, line 29 to cols. 7/8, Table No. 2). In view thereof, it is not seen that ALTHAUS provides an apparent reason for one of ordinary skill in the art to replace the prepolymer process (i.e., the only

process) disclosed by SINGH by a process which is mentioned merely in passing in ALTHAUS.

Regarding SINGH it further is noted that this document is concerned with the lowering of residual free aromatic polyisocyanates in prepolymers by incorporating 2,4-toluene diisocyanate dimer into the prepolymer. SINGH notes that free toluene diisocyanate in a prepolymer can be reduced by decreasing the isocyanate/hydroxyl ratio of the prepolymer formulation. The problem that such prepolymers cure very slowly is overcome by the use of the 2,4-TDI dimer in the prepolymer. In other words, SINGH teaches slow hardening of the prepolymer, followed by fast curing to obtain an as short as possible demold time. In contrast thereto, the components for a gel coating resin system should provide a comparatively long lamination time with a pot life sufficient for the mixing and introduction into the mold and gel and tack free times sufficient for film formation. In this regard see, e.g., paragraphs [0022] and [0023] of the published application.

Regarding instant **claims 23 and 41**, it additionally is pointed out that these claims recite (*inter alia*) that the synthetic resin is applied onto the gel coat material. The Examiner has not provided any explanation as to why this is allegedly rendered obvious to one of ordinary skill in the art by any of the cited documents.

Applicant notes that the only cited document that relates to a combination of a synthetic resin (epoxy) and a polyurethane is SONDHE. In this regard, the abstract of SONDHE states, *inter alia* (emphasis added):

> An article generally comprises an epoxy base coat and a urethane top coat which has particular use for application. ... The two-part epoxy composition can be applied to a road with the urethane composition coated thereon whereupon it serves as a lane marker. The urethane composition has exceptional weatherability, abrasion-resistance and non-yellowing characteristics. Various reflective compounds such as glass beads can be applied thereto which are partially embedded therein and have good night as well as wet night reflective properties.

Further, in col. 4, lines 23-33 SONDHE states (emphasis added):

> Articles in the form of a laminate or coated substrates are formed by generally adding a layer of the urethane composition to the epoxy composition. The epoxy composition has good bonding to surfaces such as industrial floors, garage decks, i.e. concrete and steel structures, storage tanks, roads including concrete and asphalt and the like, and hence generally serves as the substrate interface or base layer. The urethane composition has good weatherability resistance as well as generally good abrasion resistance and therefore serves as a good durable top coat.

Accordingly, SONDHE explicitly teaches applying the urethane composition onto the epoxy composition, not *vice versa*. It is not seen that it is obvious to one of ordinary skill in the art to reverse the order taught by SONDHE and to apply the epoxy composition of SONDHE (which exhibits good bonding to surfaces) as a top coat and the urethane composition of SONDHE (which exhibits good weatherability resistance and good abrasion resistance) as a base coat, i.e., to coat the urethane composition with the epoxy composition to thereby forfeit the particular advantages of both compositions pointed out by SONDHE.

Applicant submits that for at least all of the foregoing reasons, the Examiner has failed to establish a *prima facie* case of obviousness of the subject matter of any of the present claims in view of SINGH, ALTHAUS and SONDHE. Accordingly, withdrawal of the instant rejection is warranted, which action is respectfully requested.

Response to Rejection of Claims 24 and 25 under 35 U.S.C. § 103(a)

Claims 24 and 25 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over SINGH in view of ALTHAUS in further view of SONDHE and in further view of MOTSINGER.

Applicant respectfully traverses this rejection as well. In particular, it is noted that claims 24 and 25 are dependent claims and are not rendered obvious for at least all of the reasons which are set forth above in connection with independent claim 20. MOTSINGER apparently is unable to cure the deficiencies of SINGH, ALTHAUS and SONDHE.

Moreover, it is not seen that one of ordinary skill in the art would be motivated to combine the disclosure of MOTSINGER with the disclosures of SINGH, ALTHAUS or SONDHE. For example, MOTSINGER mentions (foamed) polyurethanes and polyester or epoxy resins only generically as examples of suitable materials for the outer surface of the inner shell and the outer shell of the force vector transducer taught therein, without giving any details regarding the composition or production of these materials.

It further is not seen that someone who seeks to modify the teachings of SINGH (relating to low free toluene diisocyanate prepolymers and elastomeric polyurethane/ureas or polyurethanes made therefrom), ALTHAUS (relating to new amines for use as chain-lengthening agents or cross-linking agents for polyurethanes) and SONDHE (relating to epoxy resin/polyurethane laminates for use as, e.g., road lane markers) would expect to find any useful information in this regard in a document which relates to force vector transducers which are especially adapted for measuring both the

direction and the extent of the three force components of a moving current of fluid such as air or water (see, e.g., col. 1, lines 9-13 of MOTSINGER).

Applicant submits that for at least all of the foregoing reasons, SINGH in view of ALTHAUS, SONDHE and MOTSINGER fails to render obvious the subject matter of any of the claims of record, wherefore withdrawal of the instant rejection is warranted as well.

Response to Rejection of Claim 19 (39) under 35 U.S.C. § 103(a)

Claim 19 (39) is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over SINGH in view of ALTHAUS in further view of SONDHE and in further view of CHAPIN.

Applicant respectfully traverses this rejection as well. In particular, it is noted that claim 39 is a dependent claim and is not rendered obvious for at least all of the reasons which are set forth above in connection with the claim from it depends. CHAPIN apparently is unable to cure the deficiencies of SINGH, ALTHAUS and SONDHE.

It further is not seen that someone who wishes to modify the teaching of the teachings of SINGH (relating to low free toluene diisocyanate prepolymers and elastomeric polyurethane/ureas or polyurethanes made therefrom), ALTHAUS (relating to new amines for use as chain-lengthening agents or cross-linking agents for polyurethanes) and SONDHE (relating to epoxy resin/polyurethane laminates for use as, e.g., road lane markers) would expect to find any useful information in this regard in a document which relates to air flow transducers for measuring the rate of air flow into an engine having a propensity to backfire (see, e.g., abstract of CHAPIN).

Applicant also fails to see that despite the considerable difference in, e.g., size, one of ordinary skill in the art would assume that a vane affixed to a rotor of an air flow transducer for measuring the rate of air flow into an engine having a propensity to backfire (CHAPIN) should also be suitable as a rotor vane for a wind power plant.

Applicant submits that for at least all of the foregoing reasons, SINGH in view of ALTHAUS, SONDHE and CHAPIN fails to render obvious the subject matter of any of the claims of record, wherefore withdrawal of the instant rejection is warranted as well.

CONCLUSION

In view of the foregoing, it is believed that all of the claims in this application are in condition for allowance, wherefore an early issuance of the Notices of Allowance and Allowability is respectfully solicited. In this regard, it is noted that a Supplemental Information Disclosure Statement is being filed concurrently herewith. Accordingly, the Examiner is respectfully requested to indicate consideration of the Supplemental Information Disclosure Statement by returning a duly initialed and signed copy of the Form PTO-1449 submitted therein with the next communication from the Patent and Trademark Office.

If any issues yet remain which can be resolved by a telephone conference, the Examiner is respectfully invited to contact the undersigned at the telephone number below.

Respectfully submitted,
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